

REMARKS

Reconsideration of the present application is respectfully requested. In response to the office action dated September 6, 2005, Applicants have amended claims 1, 14, and 27 and have cancelled claims 3 and 16. Therefore, Claims 1, 2, 4-15, and 17-33 remain for consideration in this application.

Independent claims 1, 14, and 27 have been amended to include the limitation that the average particle size of the aqueous latex dispersion obtained is from about 60 to about 140 nm. This limitation was originally found in dependent claims 3 and 16 which are now cancelled. Claim 27 was also amended to correct a typographical error, namely, to insert the word "percent" after the alkyd range limitation.

Claims 1-33 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,262,149 to Clark et al. Claims 1-33 were also rejected under 35 U.S.C. 103(a) as being obvious in view of the '149 patent. Applicants respectfully traverse these rejections and submit that unexpected and surprising results are achieved when employing the presently claimed amount of alkyd resin in the aqueous latex dispersion.

The '149 patent is directed toward a water-based latex of an acrylic-modified waterborne alkyd dispersion in water. In column 10, lines 27-28, the '149 patent discloses that the alkyd portion of the hybrid latex represents about 5-60 weight % of the total solids of the latex and that the acrylic portion of the hybrid latex represents about 30-90 weight % of the total solids of the latex. While these ranges do overlap the presently claimed ranges of alkyd resin (about 2 to about 15 weight %) and ethylenically unsaturated monomers (about 85 to about 98 weight %, claim 1 only), Applicants submit that the broad ranges disclosed in the '149 patent do not teach the presently claimed ranges with sufficient specificity as required by MPEP 2131.03.

MPEP 2131.03(II) states that

In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may

be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching.

All pending claims contain the limitation that the sulfonated alkyd resin is present in an amount from about 2 to about 15 weight %. This range is not entirely encompassed by the broad alkyd portion range disclosed in the '149 patent, but only overlaps a very small portion thereof. Thus, the present claims are directed toward an alkyd range that is relatively narrow when compared to the broad range set forth in the '149 patent which spans 55 percentage points. Further, Applicants can demonstrate that unexpected results are achieved within the presently claimed range.

When viewed as a whole, the teachings of '149 patent do not clearly envisage the presently claimed alkyd range. The '149 patent contains no example which employs an amount of alkyd resin that falls within the presently claimed range. The lowest percentage of alkyd resin employed in the examples may be found in Example 5 which used 20 wt. % alkyd. Furthermore, based on the teachings of the '149 patent, one of ordinary skill in the art would not expect to form a latex dispersion having an average particle size of between about 60 to about 140 nm using the presently claimed amount of alkyd resin. In order to fully appreciate why this result is unexpected, it is necessary to discuss the general knowledge of those skilled in the art with respect to achieving small particle sizes through emulsion polymerization and how this knowledge is typified by the teachings of the '149 patent.

It is generally accepted in the field of emulsion polymerization that utilizing a greater number of seed particles will result in a smaller average particle size for the polymerized material. Assuming all other things equal, it is theorized that the greater the number of seeds that are available for polymerization, the number of monomers polymerized per seed will be less thereby resulting in a smaller average particle size. However, if there are fewer seeds initially, the number of monomers polymerized per seed will be greater thereby resulting in a larger average particle size. This principle is demonstrated in Examples 5 and 6 of the '149 patent (see, Table 1). Example 5

employs 20 wt. % alkyd. After polymerization, the average particle size obtained is 296 nm. In Example 6, a greater amount of alkyd seed (i.e., more seed particles) is used and a significantly smaller average particle size of 152 nm is obtained. Thus, one of ordinary skill in the art would expect that in order to obtain a smaller average particle size one would need to increase the amount of alkyd resin (i.e., the number of seeds) used. However, as shown in the present application, it was discovered that over the presently claimed alkyd range the exact opposite is true; lowering the amount of alkyd resin into the presently claimed range results in a smaller average particle size.

Example 10 of the present specification describes the preparation of an aqueous latex dispersion using approximately 8 wt. % alkyd based on the total weight of alkyd and monomer. This example produced an aqueous latex dispersion having an average particle size of 104 nm, one-third of the particle size of Example 5 of the '149 patent. According to the present invention, one can synthesize an aqueous latex dispersion having particle sizes of from about 60 to about 140 nm while using significantly less alkyd resin than employed by the examples of the '149 patent. Example 10 is merely illustrative as the present application is replete with examples that produce average particle sizes smaller than what would be expected given the knowledge in the art typified by the '149 patent.

Applicants have discovered that significantly smaller particle sizes can be produced while using low amounts of alkyd resin. This discovery is contrary to the trend established by Examples 5 and 6 of the '149 patent. In view of the clearly unexpected results achieved when practicing the present invention, Applicants have demonstrated that the '149 patent does not disclose the presently claimed invention with sufficient specificity and that the presently claimed invention is not obvious in view of the '149 patent's teachings.

Claims 2, 4-13, 15, and 18-33 also define novel and non-obvious features of the present invention.

Applicants respectfully request that a timely Notice of Allowance be issued in this case. Should the Examiner have any questions, please contact the undersigned at (423) 229-6204.

Respectfully submitted,

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